

III. Coagulation disorders :

a) Congenital :

- Hemophilia A (classic hemophilia, factor VIII hemophilia)
- Hemophilia B (Christmas disease, factor IX hemophilia)
- Afibrinogenemia & dysfibrinogenemia.

b) Acquired :

- Liver cell failure.
- Vitamin K deficiency.
- Disseminated intravascular coagulation (DIC).
- Drugs : anti-coagulants.

Tests for purpura & Coagulation system

1. **Hess test** : (*capillary fragility test*)

Detects vascular purpura. It may be +ve in other types of purpura.

2. **Bleeding time** : (2-7 minutes) obsolete investigation

- Small incision is made & the wound is wicked with filter paper every 30 seconds until the fluid is clear.
- Prolonged : in all types of purpura.

3. **Clotting time** : (5-10 minutes)

- Indicator of the intrinsic pathway.
- Not sensitive test as it take 4-5 minutes just to activate factor **XII**

4. **Activated Partial Thromboplastin Time** (aPPT , PTT) :

- Normal : 30 - 40 seconds.
- Used to evaluate the intrinsic coagulation system.
- Used to monitor heparin therapy.
- **Prolonged** : Heparin , Defect in the intrinsic pathway e.g. Hemophilia , DIC , von Willebrand disease.

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5. Prothrombin Time (PT) :

- Normal : 10 - 14 seconds
- It is measured by adding tissue thromboplastin & Ca to the patient's plasma to activate extrinsic pathway.
- Used to evaluate the extrinsic coagulation system.
- Used to monitor oral anticoagulant therapy.
- **Prolonged** : Oral anticoagulants , liver diseases , ↓ vit K , DIC
- **INR** (*International Normalized Ratio*) :
 - $\text{INR} = \frac{\text{patient PT}}{\text{control PT}}$
 - Normal : 0.8 - 1.2
 - Therapeutic INR is 2 - 3

6. Thrombin Time (TT) :

- Normal : 10 - 14 seconds.
- It is performed by adding thrombin to the patient's plasma.
- Measure of conversion of fibrinogen to fibrin.
- **Prolonged** : Afibrinogenemia , Dysfibrinogenemia , DIC , Heparin.

I know not with what weapons World War III will be fought, but World War IV will be fought with sticks and stones.

Albert Einstein